

Thinking Critically With Psychological Science

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- Need for Psychological Science:
 - The “grandmother test”
 - Potential problems relying on the intuition and common sense
 - Hindsight Bias
 - Overconfidence
 - Perception of patterns in random events
 - **Hindsight Bias**: the tendency to believe, after learning an outcome, that one would have foreseen it.
 - We should be predicting rather than explaining
 - Sometimes intuition is wrong
 - **Overconfidence**: We think we know more than we do.
 - Danger when studying for an exam under this assumption
 - When shown that they aren't accurate, participants explain away the results
 - Perceiving order in random events
 - **The Scientific Attitude**:
 - 3 main components
 - 1. Curiosity- Willingness to go against the norm
 - 2. Skepticism
 - 3. Humility: awareness of vulnerability to error and openness to new perspectives.
 - Let the data/information guide you
 - “The rat is always right”

- **Critical Thinking:** thinking that does not blindly accept arguments and conclusions
 - Examine assumptions
 - Discern hidden values
 - Evaluate evidence
 - Assess conclusions

□ Asking and Answering Psychological Questions:

- The Scientific Method
 - **Theory:** an explanation using an integrated set of principles that organizes observations and predicts behaviors or events
 - **Hypothesis:** testable predictions
 - Allow us to show support for, revise, or reject a theory
 - Be careful of confirmation bias
 - **Operational definitions:** a statement of the procedures used to define research variables
 - Replicate...and expand
- The scientific Method
 - Use your theory and observations to define the question
 - For a hypothesis
 - Test the hypothesis (use appropriate experimental controls)
 - Draw a conclusion about the hypothesis
- Observing and Describing Behavior
 - **Case Study:** an in depth study of one individual conducted in hopes of revealing universal principles
 - **Survey:** method of obtaining self-report data from a particular group

- Population all the cases in a group being studied, from which samples may be drawn
- Random Sample: a sample that fairly represents a population because each member has an equal chance of inclusion
- **Naturalistic Observation**: observing and recording behavior in naturally occurring situations without trying to manipulate and control the situation
 - Overt observation
 - Covert observation
 - Participant observer
 - Non-participant observer
- **Correlation**: measure of the extent to which two factors vary together
 - Direction
 - **Positive**- when one variable increases so does the other
 - **Negative**- when one variable increases, the other decreases
 - **Strength**: the closer the absolute value of the correlation is to 1, the stronger the relationship
 - Illusory correlation: the perception of a relationship where none exists.
- **Experimentation**: investigator manipulates one of more factors (Independent variable) to observe the effects on some behavior or mental process (dependent variable)
 - Must hold constant (control) other factors that you aren't interested in
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